

# SEQUENCE LISTING

## (1) GENERAL INFORMATION:

(i) APPLICANT: Zancopé-Oliveira, Rosely M.  
et al.,

(ii) TITLE OF INVENTION: Nucleic Acids of the M Antigen  
Gene of Histoplasma Capsulatum, Isolated and  
Recombinantly-Produced  
Antigens, Vaccines and Antibodies, Method

(iii) NUMBER OF SEQUENCES: 13

(iv) CORRESPONDENCE ADDRESS:

- (A) ADDRESSEE: Fitch, Even, Tabin & Flannery
- (B) STREET: 135 South LaSalle Street, Suite 900
- (C) CITY: Chicago
- (D) STATE: IL
- (E) COUNTRY: USA
- (F) ZIP: 60603-4277

(v) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Diskette
- (B) COMPUTER: IBM Compatible
- (C) OPERATING SYSTEM: Windows
- (D) SOFTWARE: FastSEQ for Windows Version 2.0

(vi) CURRENT APPLICATION DATA:

- (A) APPLICATION NUMBER:
- (B) FILING DATE:
- (C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

- (A) APPLICATION NUMBER:
- (B) FILING DATE:

(viii) ATTORNEY/AGENT INFORMATION:

- (A) NAME: Kaba, Richard A
- (B) REGISTRATION NUMBER: 30,562
- (C) REFERENCE/DOCKET NUMBER: 6314/62527

(ix) TELECOMMUNICATION INFORMATION:

- (A) TELEPHONE: 312-372-7842
- (B) TELEFAX: 312-372-7848
- (C) TELEX:

## (2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3862 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: Histoplasma capsulatum
- (B) STRAIN: var. capsulatum

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

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GGTGTGGCCC	TTGATGCATA	TGTTTATT	ATAGCGCC	GGAGCCCTG	GCCTGTTAAA	240
TTTTGGACCT	CCTCCGCCA	TTCTTTCCAA	ACTTCGTGCG	TCCGTTTCCC	ATTTCCCCCC	300
TCCCAATTGT	GGTTCCTAT	AGGCCACTGC	GTGCTCACT	CAAGAAGGGT	CCCAGTCAAT	360
TTGGTCCCTA	CCCTCTCCAA	CACATCTGCG	ATATGTAATA	TATATCGATA	TCTAACTGCC	420
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TCACATCCTA	TAATAACTGG	TCGAATATCA	CAGCCGCATC	CTTCTTGAAC	GCGGCAGGAA	960
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CACCCCAATC	GGAAAATAGG	TCTTGAACCG	AAACCCAAAA	AGTTATTTTG	CCGAAACTGA	1860
GCAGATCATG	GTTGGTCCAC	CCCTATATA	TTTGAATAT	GAATACATGT	ATAGCTAGAT	1920
GAAGCGTATA	TCTAAATATA	TTTCCACAGT	TCCAACAGG	TCATGTAGT	CGCGGAATCG	1980
ATTTACGCGA	TGACCTTTTG	CTTCAGGGCC	GCTGTGACTC	CTACCTTGAC	ACTCAATTGA	2040
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ATAACAACAA	TCGCGACGGT	GCTGGTAAGC	TACTTCTCAC	CTACCATGTC	AACCTTCCAT	2160
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GCCGGTGTC	AGCTTTCANG	GGCCTAATTA	ATTTGAAGAG	GAGETGGAAG	TGAAATCTTG	3300
CTGTAACTAT	AATAATTTAT	AATAACTAAT	AACCTTAAAT	TAATGTCTAT	TGTAATTTCC	3360
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GAGACAAATA	ATGATAGATT	AACAAATAAT	TGCACACCCA	ATAGGCCCTC	CCTCACGATA	3480
TCAGATATTA	TCTATCATGT	TGTAATGATA	CCTCAAAAT	GCCACAAGCT	TGCCTGATAT	3540
TGAATATTTA	TATGCTGTAA	ATGTAGGAAA	GAGCG			

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 707 amino acids
  - (B) TYPE: amino acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

1 Met Pro Ser Gly Gln Lys Gly Pro Leu Asp Arg Arg His Asp Thr Leu  
 5 Ser Asp Pro Thr Asp Gln Phe Leu Ser Lys Phe Tyr Ile Asp Asp Glu  
 Gln Ser Val 20 Thr Thr Asp Val 25 Gly Gly Pro Ile Glu Asp Gln His  
 Ser Leu 35 Lys Ala Gly Asn Arg Gly Pro Thr Leu Leu Glu Asp Phe Ile  
 10 Phe Arg Gln Lys Ile Gln 55 His Phe Asp His Glu 60 Arg Val Pro Glu Arg  
 Ala Val His Ala Arg Gly Ala Gly Ala His Gly Val Phe Thr Ser Tyr  
 15 Asn Asn Trp Ser Asn Ile Thr Ala Ala Ser Phe Leu Asn Ala Ala Gly  
 Lys Gln Thr 100 Pro Val Phe Val Arg 105 Phe Ser Thr Val Ala Gly Ser Arg  
 Gly Ser Val Asp Ser Ala Arg 120 Asp Ile His Gly Phe Ala Thr Arg Leu  
 20 Tyr Thr Asp Glu Gly Asn 135 Phe Asp Ile Val Gly Asn Asn Val Pro Val  
 Phe Phe Ile Gln Asp Ala Ile Gln Phe Pro Asp Leu Ile His Ala Val  
 25 Lys Pro Gln Pro Asp Ser Glu Ile Pro Gln Ala Ala Thr Ala His Asp  
 Thr Ala Trp Asp Phe Leu Ser Gln Gln Pro Ser Ser Leu His Ala Leu  
 Phe Trp Ala Met Ser Gly His Gly Ile Pro Arg Ser Met Arg His Val  
 30 Asp Gly Trp Gly Val His 215 Thr Phe Arg Leu Val Thr Asp Glu Gly Asn  
 Ser Thr Leu Val Lys 230 Phe Arg Trp Lys Thr Leu Gln Gly Arg Ala Gly  
 35 Leu Val Trp Glu 245 Ala Gln Ala Leu 250 Gly Gly Lys Asn Pro Asp Phe  
 His Arg Gln Asp Leu Trp Asp Ala Ile Glu Ser Gly Arg Tyr Pro Glu  
 Trp Glu Leu Gly Phe Gln Leu Val Asn Glu Ala Asp Gln Ser Lys Phe  
 40 Asp Phe Asp Leu Leu Asp 295 Pro Thr Lys Ile Ile Pro Glu Glu Leu Val  
 Pro Phe Thr Pro Ile Gly Lys Met Val Leu Asn Arg Asn Pro Lys Ser  
 45 Tyr Phe Ala Glu Thr Glu Gln Ile Met 345 Phe Gln Pro Gly His Val Val  
 Arg Gly Ile Asp Phe Thr Asp Asp Pro Leu Leu Gln Gly Arg Leu Tyr  
 Ser Tyr Leu Asp Thr Gln Leu Asn Arg His Gly Gly Pro Asn Phe Glu  
 50 Gln Leu Pro Ile Asn Arg 375 Pro Arg Ile Pro Phe His Asn Asn Asn Arg  
 Asp Gly Ala Gly Gln Met Phe Ile Pro Leu Asn Thr Ala Ala Tyr Thr  
 Pro Asn Ser Met Ser Asn Gly Phe Pro Gln Gln Ala Asn Arg Thr His  
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 Val Arg Glu Leu Ser Pro Ser 440 Phe Asn Asp Val Trp Ser Gln Pro Arg  
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 Ala Met Arg Phe Glu Asn Ser His Val Arg Ser Glu Thr Val Arg Lys  
 Asn Val Ile Ile Gln Leu Asn Arg Val Asp Asn Asp Leu Ala Arg Arg  
 65 Val Ala Leu Ala Ile Gly Val Glu Pro Pro Ser Pro Asp Pro Thr Phe  
 Tyr His Asn Lys Ala Thr Val Pro Ile Gly Thr Phe Gly Thr Asn Leu  
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545 550 555 560  
 Ser Phe Thr Ile Ala Glu Gln Leu Arg Ala Ala Phe Asn Ser Ala Asn  
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 Gly Val Asn Met Thr Tyr Ser Gly Ala Asp Gly Ser Ile Phe Asp Ala  
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 705

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: None

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Ser Asp Pro Thr Asp Gln Phe Leu  
 1 5

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: None

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Asp Phe Ile Phe Arg Gln Lys Ile Gln His Phe Asp His Glu Arg  
 1 5 10 15

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: None

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Thr Leu Gln Gly Arg Ala Gly Leu Val  
 1 5

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 amino acids  
 (B) TYPE: amino acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: None

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Ala Gln Ala Leu Gly Gly Lys Asn Pro Asp Phe His Arg Gln Asp Leu  
1 5 10 15

5

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6 amino acids

(B) TYPE: amino acid

10

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: None

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Ser Gly Arg Tyr Pro Glu  
1 5

15

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 amino acids

(B) TYPE: amino acid

20

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: None

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Phe Asp Phe Asp Leu Leu Asp Pro Thr Lys  
1 5 10

25

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 amino acids

(B) TYPE: amino acid

30

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Ile Ile Pro Glu Glu Leu Val Pro Phe Thr Pro Ile Gly Lys  
1 5 10

35

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

40

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(ix) FEATURE:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

AARAYCCVG AYTTY

15

45

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 base pairs

(B) TYPE: nucleic acid

50

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Other

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

14

(2) INFORMATION FOR SEQ ID NO:12:

5 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 22 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear  
 10 (ii) MOLECULE TYPE: Other

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

CGGAATCCTC CGACCCTACG GA

22

(2) INFORMATION FOR SEQ ID NO:13:

15 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 27 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear  
 (ii) MOLECULE TYPE: Other

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

ACCAAGCTTC TATCCAACGG GAACCGA

27

1. The first part of the document is a list of references. The references are listed in two columns. The first column contains references 1 through 10, and the second column contains references 11 through 20. The references are as follows:

1. The first part of the document is a list of references.	11. The first part of the document is a list of references.
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## SEQUENCE LISTING

<110> THE GOVERNMENT OF THE UNITED STATES OF AMERICA, AS REPRESENTED BY  
THE  
DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR DISEASE  
CONTROL AND

PREVENTION  
ZANCOPE-OLIVEIRA, ROSALY M.  
LOTT, TIMOTHY J.  
MAYER, LEONARD W.  
REISS, ERROL  
DEEPE, JR., GEORGE S.

<120> NUCLEIC ACIDS OF THE M ANTIGEN GENE OF  
HISTOPLASMA CAPSULATUM, ISOLATED AND RECOMBINANTLY-PRODUCED  
ANTIGENS, VACCINES AND ANTIBODIES, METHODS AND KITS FOR  
DETECTING HISTOPLASMOSIS

<130> 65798 / US

<140> NYA

<141> 1999-04-27

<150> U.S. 60/083,676

<151> 1998-04-30

<150> PCT/US99/09151

<151> 1999-04-27

<160> 13

<170> FastSEQ for Windows Version 3.0

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<211> 3863

<212> DNA

<213> Histoplasma capsulatum

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 <212> PRT  
 <213> Histoplasma capsulatum

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 20 25 30  
 Gln Ser Val Leu Thr Thr Asp Val Gly Gly Pro Ile Glu Asp Gln His  
 35 40 45  
 Ser Leu Lys Ala Gly Asn Arg Gly Pro Thr Leu Leu Glu Asp Phe Ile  
 50 55 60  
 Phe Arg Gln Lys Ile Gln His Phe Asp His Glu Arg Val Pro Glu Arg  
 65 70 75 80  
 Ala Val His Ala Arg Gly Ala Gly Ala His Gly Val Phe Thr Ser Tyr  
 85 90 95  
 Asn Asn Trp Ser Asn Ile Thr Ala Ala Ser Phe Leu Asn Ala Ala Gly  
 100 105 110  
 Lys Gln Thr Pro Val Phe Val Arg Phe Ser Thr Val Ala Gly Ser Arg  
 115 120 125  
 Gly Ser Val Asp Ser Ala Arg Asp Ile His Gly Phe Ala Thr Arg Leu  
 130 135 140  
 Tyr Thr Asp Glu Gly Asn Phe Asp Ile Val Gly Asn Asn Val Pro Val  
 145 150 155 160  
 Phe Phe Ile Gln Asp Ala Ile Gln Phe Pro Asp Leu Ile His Ala Val  
 165 170 175  
 Lys Pro Gln Pro Asp Ser Glu Ile Pro Gln Ala Ala Thr Ala His Asp  
 180 185 190  
 Thr Ala Trp Asp Phe Leu Ser Gln Gln Pro Ser Ser Leu His Ala Leu  
 195 200 205  
 Phe Trp Ala Met Ser Gly His Gly Ile Pro Arg Ser Met Arg His Val  
 210 215 220  
 Asp Gly Trp Gly Val His Thr Phe Arg Leu Val Thr Asp Glu Gly Asn  
 225 230 235 240  
 Ser Thr Leu Val Lys Phe Arg Trp Lys Thr Leu Gln Gly Arg Ala Gly  
 245 250 255  
 Leu Val Trp Glu Glu Ala Gln Ala Leu Gly Gly Lys Asn Pro Asp Phe  
 260 265 270  
 His Arg Gln Asp Leu Trp Asp Ala Ile Glu Ser Gly Arg Tyr Pro Glu  
 275 280 285  
 Trp Glu Leu Gly Phe Gln Leu Val Asn Glu Ala Asp Gln Ser Lys Phe  
 290 295 300  
 Asp Phe Asp Leu Leu Asp Pro Thr Lys Ile Ile Pro Glu Glu Leu Val  
 305 310 315 320  
 Pro Phe Thr Pro Ile Gly Lys Met Val Leu Asn Arg Asn Pro Lys Ser  
 325 330 335  
 Tyr Phe Ala Glu Thr Glu Gln Ile Met Phe Gln Pro Gly His Val Val

340 345 350  
 Arg Gly Ile Asp Phe Thr Asp Asp Pro Leu Leu Gln Gly Arg Leu Tyr  
 355 360 365  
 Ser Tyr Leu Asp Thr Gln Leu Asn Arg His Gly Gly Pro Asn Phe Glu  
 370 375 380  
 Gln Leu Pro Ile Asn Arg Pro Arg Ile Pro Phe His Asn Asn Asn Arg  
 385 390 395 400  
 Asp Gly Ala Gly Gln Met Phe Ile Pro Leu Asn Thr Ala Ala Tyr Thr  
 405 410 415  
 Pro Asn Ser Met Ser Asn Gly Phe Pro Gln Gln Ala Asn Arg Thr His  
 420 425 430  
 Asn Arg Gly Phe Phe Thr Ala Pro Gly Arg Met Val Asn Gly Pro Leu  
 435 440 445  
 Val Arg Glu Leu Ser Pro Ser Phe Asn Asp Val Trp Ser Gln Pro Arg  
 450 455 460  
 Leu Phe Tyr Asn Ser Leu Thr Val Phe Glu Lys Gln Phe Leu Val Asn  
 465 470 475 480  
 Ala Met Arg Phe Glu Asn Ser His Val Arg Ser Glu Thr Val Arg Lys  
 485 490 495  
 Asn Val Ile Ile Gln Leu Asn Arg Val Asp Asn Asp Leu Ala Arg Arg  
 500 505 510  
 Val Ala Leu Ala Ile Gly Val Glu Pro Pro Ser Pro Asp Pro Thr Phe  
 515 520 525  
 Tyr His Asn Lys Ala Thr Val Pro Ile Gly Thr Phe Gly Thr Asn Leu  
 530 535 540  
 Leu Arg Leu Asp Gly Leu Lys Ile Ala Leu Leu Thr Arg Asp Asp Gly  
 545 550 555 560  
 Ser Phe Thr Ile Ala Glu Gln Leu Arg Ala Ala Phe Asn Ser Ala Asn  
 565 570 575  
 Asn Lys Val Asp Ile Val Leu Val Gly Ser Ser Leu Asp Pro Gln Arg  
 580 585 590  
 Gly Val Asn Met Thr Tyr Ser Gly Ala Asp Gly Ser Ile Phe Asp Ala  
 595 600 605  
 Val Ile Val Val Gly Gly Leu Leu Thr Ser Ala Ser Thr Gln Tyr Pro  
 610 615 620  
 Arg Gly Arg Pro Leu Arg Ile Ile Thr Asp Ala Tyr Ala Tyr Gly Lys  
 625 630 635 640  
 Pro Val Gly Ala Val Gly Asp Gly Ser Asn Glu Ala Leu Arg Asp Val  
 645 650 655  
 Leu Met Ala Ala Gly Gly Asp Ala Ser Asn Gly Leu Asp Gln Pro Gly  
 660 665 670  
 Val Tyr Ile Ser Asn Asp Val Ser Glu Ala Tyr Val Arg Ser Val Leu  
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 Ser  
 705

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<212> PRT

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5

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<213> Histoplasma capsulatum

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1 5

<210> 6  
<211> 16  
<212> PRT  
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<210> 7  
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<212> PRT  
<213> Histoplasma capsulatum

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1 5

<210> 8  
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<400> 9

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<220>

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<400> 10

aaraayccvg aytty

15

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<220>

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ttnccdatng traa

14

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22

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<223> Primer

<400> 13

accaagcttc tatccaacgg gaaccga

27